IN THE SPECIFICATION:

Please amend/replace the paragraph 59 on pages 11 and 12, as follows:

[0059] Figure 2 shows one embodiment of the present disclosure. Fuel cell assembly 21 is a PEMFC and is one unit of a fuel cell stack 20. A catalyst 22 and a proton-exchange membrane electrolyte 24 are between bipolar plates 26a and 26b. Bipolar plate 26a serves as the cathode plate of fuel cell assembly 20 and the anode plate of the adjacent fuel cell assembly. Bipolar plate 26b serves as the anode plate of fuel cell assembly ~~20~~ 21 and the cathode plate of the adjacent cell assembly. In between the anode and cathode sides of each bipolar plate is a layer 28 of thermoelectric devices and temperature-sensing devices. The thermoelectric devices are each connected to a power source (not shown), which applies a current to the device. The temperature-sensing devices are connected to the power sources via control circuitry (not shown). Thus, the control circuitry controls the temperature of the plate by varying the voltage level of the power sources in response to the measured temperatures. Heat is transferred along each bipolar plate to one or more of its edges. Thus, the direction of heat transfer is parallel to the bipolar plate.

Please amend/replace the paragraph 25 on pages 14 and 15, as follows:

[0025] Figure 4a shows a top view of a bipolar plate 41 of a fuel cell assembly 40 with an arrangement of fuel and oxidant flow channels that may be used in accordance with one embodiment of the present disclosure. In this example, the fuel cell assembly is a PEMFC. Hydrogen fuel and oxygen enter at gas inlet 42. The product of the reaction exits at outlet 46. Flow channels 48 channel the reactant and product gases across the length of the fuel cell assembly 40. Figure 4b shows the temperature gradient 49 associated with this reactant channel arrangement. The inlet temperature, represented by the denser line pattern, is cooler than the outlet temperature, represented by the less dense line pattern. Figures 6A and 6B shows the thermoelectric layer 60 used with the fuel and oxidant flow channel arrangement of Figure 4a. Peltier devices 62 are

arranged in a parallel configuration along the width of the fuel cell assembly 40. Each Peltier device is connected to a power source (not shown). Heat is transferred along the layer, from the hot side of the plate to the cold side of the plate. Thermocouples 64 are between each pair of adjacent thermoelectric devices. Each thermocouple is associated with an adjacent Peltier device or devices and is connected to the power sources associated with those Peltier devices via control circuitry. Each thermocouple measures the temperature of the fuel cell assembly at its location. The voltage of the power source, and thus the amount of heat transferred, adjusts according to the measured temperature in order to keep the fuel cell at the optimal temperature.